It is claimed:

1. A local oscillator (LO) circuit, comprising:

a first LO source to generate a first periodic signal cycling at a first frequency;

a second LO source to generate a second periodic signal cycling at a second frequency different than said first frequency;

a limiter;

a first switching element to selectively couple said first LO source to said limiter; and

a second switching element to selectively couple said second LO source to said limiter.

2. The LO circuit of claim 1, wherein said first and/or second switching element comprises a transistor.

3. The LO circuit of claim 2, wherein said transistor comprises a field effect transistor.

4. The LO circuit of claim 1, further comprising a transformer coupled between said limiter and said first and second switching elements, wherein said transformer comprises first and second differential transformer outputs.

5. The LO circuit of claim 4, wherein said limiter comprises:

a first differential transistor having a first conduction path and a first control input to control a resistance of said first conduction path, wherein said first control input is coupled to said first differential transformer output;

a second differential transistor having a second conduction path and a second control input to control a resistance of said second conduction path, wherein said second control input is coupled to said second differential transformer output;

a first resistive element coupled between said first conduction path and a power supply terminal;

a second resistive element coupled between said second conduction path and said power supply terminal; and

a current source coupled between said first and second conduction paths and a ground terminal.

6. The LO circuit of claim 5, wherein said first and/or second differential transistors comprises a bipolar transistor.

7. The LO circuit of claim 5, wherein said first and/or second resistive elements comprises a resistor.

8. A method comprising:

generating a first LO signal cycling at a first frequency;

generating a second LO signal cycling at a second frequency different than said first frequency;

activating a first switching element to substantially produce said first LO signal at a node;

de-activating a second switching element to substantially de-couple said second LO signal from said node, wherein a leakage LO signal is also produced at said node; and

amplifying said first LO signal and said leakage LO signal at said node, wherein a gain associated with said first LO signal is greater than a gain associated with said leakage LO signal.

9. The method of claim 8, wherein amplifying said first LO signal and said leakage LO signal is performed by a limiter.

10. A receiver comprising:

a mixer to down convert a received RF signal to an intermediate frequency (IF) signal; and

a local oscillator (LO) circuit coupled to said mixer, wherein said LO circuit comprises:

a first LO source to generate a first periodic signal cycling at a first frequency;

a second LO source to generate a second periodic signal cycling at a second frequency different than said first frequency;

a limiter;

a first switching element to selectively couple said first LO source to said limiter; and

a second switching element to selectively couple said second LO source to said limiter.

11. The receiver of claim 10, further comprising a transformer coupled between said limiter and said first and second switching elements, wherein said transformer comprises first and second differential transformer outputs.

12. The receiver of claim 11, wherein said limiter comprises:

a first differential transistor having a first conduction path and a first control input to control a resistance of said first conduction path, wherein said first control input is coupled to said first differential transformer output;

a second differential transistor having a second conduction path and a second control input to control a resistance of said second conduction path, wherein said second control input is coupled to said second differential transformer output;

a first resistive element coupled between said first conduction path and a power supply terminal;

a second resistive element coupled between said second conduction path and said power supply terminal; and

a current source coupled between said first and second conduction paths and a ground terminal.

13. The receiver of claim 10, further comprising a low noise amplifier (LNA) to amplify said received RF signal, wherein an output of said LNA is coupled to an input of said mixer.

14. The receiver of claim 10, further comprising an image reject filter to reject an image signal present in said received RF signal, wherein said image reject filter is coupled to an input of said mixer.

15. The receiver of claim 10, further comprising an IF filter to remove undesired signals from said IF signal.

16. The receiver of claim 10, further comprising an IF amplifier to amplify said IF signal.

17. A transmitter comprising:

a mixer to up convert an intermediate frequency (IF) signal to a radio frequency (RF) signal; and

a local oscillator (LO) circuit coupled to said mixer, wherein said LO circuit comprises:

a first LO source to generate a first periodic signal cycling at a first frequency;

a second LO source to generate a second periodic signal cycling at a second frequency different than said first frequency;

a limiter;

a first switching element to selectively couple said first LO source to said limiter; and

a second switching element to selectively couple said second LO source to said limiter.

18. The transmitter of claim 17, further comprising a transformer coupled between said limiter and said first and second switching elements, wherein said transformer comprises first and second differential transformer outputs.

19. The transmitter of claim 18, wherein said limiter comprises:

a first differential transistor having a first conduction path and a first control input to control a resistance of said first conduction path, wherein said first control input is coupled to said first differential transformer output;

a second differential transistor having a second conduction path and a second control input to control a resistance of said second conduction path, wherein said second control input is coupled to said second differential transformer output;

a first resistive element coupled between said first conduction path and a power supply terminal;

a second resistive element coupled between said second conduction path and said power supply terminal; and

a current source coupled between said first and second conduction paths and a ground terminal.

20. The transmitter of claim 17, further comprising a power amplifier to amplify said RF signal, wherein an input of said power amplifier is coupled to an output of said mixer.

21. The transmitter of claim 17, further comprising an image reject filter to reject an image signal present in said IF signal, wherein said image reject filter is coupled to an input of said mixer.

22. The transmitter of claim 17, further comprising an RF filter to remove undesired signals from said RF signal.

23. The transmitter of claim 17, further comprising an IF amplifier to amplify said IF signal.

24. An apparatus, comprising

a mixer including a local oscillator (LO) input; and

a limiter having an output coupled to said LO input of said mixer.